

Barrow Borough Council



CORPORATE PROCEDURE MAINTENANCE OF ELECTRICAL, GAS & WATER SERVICES

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CONTENTS

	Page
Quick guide	1
General responsibilities	2
Responsible persons	
Managers	
Record keeping	
Electrical services requirements	4
Responsible persons	
Managers	
Landlords	
Gas services requirements	7
Responsible persons	
Managers	
Landlords	
Carbon monoxide/smoke alarms	
Water services requirements	10
Responsible persons	
Managers	
Landlords	
Appendices:	14
1: Recommended initial frequencies of inspection of electrical installations	
2: User checks for portable equipment	
3: Checklist for hot and cold water systems	

QUICK GUIDE

- the Council is responsible for managing the risk from electrical, gas and water services as an employer – and where it is in control or the owner of premises, unless there is an explicit agreement such as a tenancy agreement or contract that places this responsibility on others
- Appointed Persons are designated with overall responsibility for engaging competent contractors to carry out inspections, checks and servicing of electric, gas and water services and to ensure they are maintained in a safe condition. Other officers must cooperate and liaise with them
- electrical installations should be inspected and tested at the intervals specified in appendix 1
- portable electrical equipment should be inspected at appropriate intervals and subject to the 'user' checks detailed in appendix 2
- gas appliances, flues and pipework should be inspected and serviced to maintain the in a safe condition
- gas appliances and flues in domestic premises should be checked for safety every 12 months and a copy of the safety check given to the tenant within 28 days
- temperature is used as the primary legionella control measure for hot and cold water systems. Stored hot water should be kept above 60 °C, and above 50 °C at outlets. Cold water should be stored and distributed below 20 °C

GENERAL RESPONSIBILITIES

General responsibilities for the management of electrical, gas & water services are listed below. Further service specific requirements can be found under each service type heading.

Responsible persons

The following persons are appointed to maintain safe electrical, gas & water services and ensure compliance with the requirements:

- the Property Services Group Manager – in respect of all operational premises and all non-operational premises as determined by the lease/rental conditions
- the Housing Maintenance Manager – in respect of Council housing stock
- the Assistant Director Housing – in respect of all other Housing Department managed premises such as shops and community centres

They will procure and manage contracts to fulfil their responsibilities, ensuring that:

- a competent contractor is engaged to carry out the contract
- all relevant assets and services are included in the contract
- appropriate maintenance and inspection regimes are in place
- the service installation is suitable for use within the building
- information on significant hazards that may not be easily apparent is passed onto the contractor
- the contractor develops appropriate risk assessments and method statements and safe systems of work are implemented
- the services remain in an efficient state of repair and a safe condition
- the contractor's service and compliance performance is monitored to ensure that they carry out their work in a safe and diligent manner
- appropriate maintenance and inspection records are maintained
- any necessary remedial works are carried out
- the contractor maintains adequate Public/Employee Liability insurance cover throughout the contract term

Managers

Managers will, for their areas of responsibility:

- inform the relevant Responsible Person of any planned or actual changes to their premises and asset lists that may affect or impact on services
- inform the relevant Responsible Person of premises that are unoccupied
- notify the relevant Responsible Person of any issues of poor service or non-compliance from the contractor
- notify the relevant Responsible Person of any defects in services
- provide safe access to the building for contractors and ensure that they are inducted on site safety and evacuation procedures
- act timely on any prohibitions, warnings, comments, suggestions made by the contractor and notify the relevant Responsible Person as soon as practicable

Record keeping

All records relating to electrical, gas & water services must be retained for at least 5 years. In particular:

- any risk assessments significant findings of the risk assessment
- details of any written schemes and of their implementation
- the dates and results of any monitoring, inspection, test or check carried out

ELECTRICAL SERVICES REQUIREMENTS

The Electricity at Work Regulations 1989 place responsibilities on employers, in so far as they relate to matters which are within their control, to ensure that electrical systems/equipment is all times are constructed and maintained and work activities carried out in such a manner to prevent any risk of injury.

Electrical systems/equipment includes every type of electrical equipment from, for example, a high-voltage transmission overhead line to a battery-powered hand lamp. There are no voltage limits in the Regulations - the criteria are whether any risk of injury may arise.

Responsible person

The responsible person must:

- ensure all electrical equipment is properly constructed, installed, maintained and suitable for the environment in which it is used
- ensure that work activities on or around electrical systems are carried out safely
- safeguard live conductors
- earth equipment or take other suitable precautions e.g. the use of residual current devices, double insulated equipment, reduced voltage etc.
- install suitable protective devices to ensure all parts of the system and users of the system are safeguarded from the effects of fault conditions
- have suitable isolation measures to cut off the electrical supply to any electrical equipment where necessary
- not carry out work on live electrical equipment unless this can be properly justified. If such work must be carried out, there are prescribed precautions which must be taken
- take adequate precautions to prevent electrical equipment, which has been made dead, from becoming live whilst any work is carried out
- ensure adequate access, working space and lighting at all electrical equipment
- ensure that any person working on electrical equipment has the technical knowledge and experience to prevent danger or injury, or is under appropriate supervision

Particular requirements for fixed electrical systems and equipment

- electrical installations should be inspected and tested in accordance with the intervals specified at appendix 1. A certificate of periodic inspection should be obtained and retained as a record of the inspection
- all works to electrical installations should be carried out by a competent person who is approved by the National Inspection Council for Electrical Installation Contracting (NICEIC) or a similar body
- all work on electrical installations should comply with the current Institute of Electrical Engineers (IEE) Wiring and Electricity at Work Regulations
- items on the certificate of periodic inspection are ranked according to risk and should be rectified as follows:
 - C1 Danger present – immediate remedial action is required. The electrical engineer should not leave the site without at least isolating the affected parts to remove the potential danger and informing people on site
 - C2 Potentially dangerous – urgent remedial action is required. Defects should be rectified without delay or other appropriate action taken
 - C3 Improvement recommended – may be carried out in conjunction with advice from the electrical contractor issuing the report
 - FI Further investigation – carry out further investigation without delay
- Residual Current Devices (RCD's) should be provided to sockets where any equipment may be used outdoors or in a damp/wet environment; or in situations where equipment may be brought onto site by third parties
- live work must not be carried out on electrical systems unless it is unavoidable. Before live work can be carried out the person in control of the work must determine that it is unreasonable to work on conductors which are dead and carry out a risk assessment of the work. They must:
 - identify the circuit or equipment to be worked on
 - ensure suitable precautions are taken and that suitable protective equipment is used
 - ensure adequate working space, access and lighting.
 - restrict access to area of live work
 - ensure trained accompaniment is provided if necessary to give assistance

Particular requirements for portable appliances

- portable appliance inspection and tests should be carried out at appropriate intervals in accordance with the Institute of Electrical Engineers' Code of Practice for In-service Inspection and Testing of Electrical Equipment, and will include the following:
 - equipment checks for suitability and condition.
 - earth continuity tests.
 - insulation resistance testing (this may be substituted by touch current measurement where insulation resistance testing is not appropriate).
 - functional checks.

Managers

Managers must ensure that:

- equipment that is used outdoors, in a damp/wet environment or in situations where equipment is brought onto site by third parties must be connected to the electrical system via an RCD
- RCD test buttons should be regularly operated to check that the mechanism is free and functioning
- staff carry out simple checks before using portable and moveable appliances using the guidance at appendix 2

Landlords

Non-domestic premises

Where non-domestic premises such as warehouses or offices are leased as workplaces, the tenant's own duties as an employer may interface with landlords' responsibilities for the maintenance of electrical systems. Close co-operation and clear allocation of responsibilities are essential to ensure that requirements are fully met and no gaps in safety cover can arise. The landlord and tenant should come to a contractual arrangement in such cases to ensure responsibilities are clearly and unambiguously defined.

Domestic premises

Where premises or any part of premises is occupied, whether exclusively or not, for residential purposes, the landlord must ensure that electrical systems provided by them are maintained to prevent any risk of injury.

GAS SERVICES REQUIREMENTS

The Gas Safety (Installation and Use) Regulations 1998 define responsibilities for both occupiers of premises and employers.

In many cases the Council will be both occupier and employer.

All engineers involved in the installation, inspection, servicing, maintenance and repair of domestic gas (including LPG) appliances must be registered under a Health and Safety Executive (HSE) approved scheme the Gas Safe Register™.

Responsible person

The responsible person in control of a place of work must:

- ensure work on any gas appliances, flue or installation pipework is only carried out by a competent person who is registered with the Gas Safe Register
- ensure that any gas appliance, flue or installation pipework installed at a place of work under their control is maintained in a safe condition

Managers

The occupier (or manager if the premises are Council controlled) must:

- not use or permit the use of any unsafe appliance
- ensure that installation pipework marked or colour coded to identify that it is carrying gas, continues to be so recognisable
- where a gas escape is suspected or known to be occurring, take immediate action to close the emergency control shut-off valve(s), except where this would be dangerous. If gas continues to escape, the supplier emergency gas service must be immediately notified
- where an escape of carbon monoxide is suspected or known, immediately turn off any appliances suspected of emitting carbon monoxide, open doors and windows to ventilate the property and contact the gas supplier emergency service

Landlords

Non-domestic premises

Where non-domestic premises such as warehouses or offices are leased as workplaces, the tenant's own duties as an employer may interface with landlords' responsibilities for maintenance of gas heating appliances. Close co-operation and clear allocation of responsibilities are essential to ensure that requirements are fully met and no gaps in safety cover can arise. The landlord and tenant should come to a contractual arrangement in such cases to ensure responsibilities are clearly and unambiguously defined.

Domestic premises

Premises or any part of premises occupied, whether exclusively or not, for residential purposes are deemed "relevant premises".

Where premises or any part of premises is occupied, whether exclusively or not, for residential purposes, the landlord must ensure that any gas appliance and any associated flue, including any landlord owned mobile or portable gas appliance, is maintained in a safe condition, so as to prevent the risk of injury to any person in occupation of the premises.

In particular landlords of domestic premises must:

- ensure that each appliance and associated flue is checked for safety within 12 months of being installed and then at intervals of not more than 12 months
- ensure that a record of the safety check is made and retained for a period of 2 years from the date of that check. The record must include the following:
 - the date on which the appliance or flue was checked
 - the address of the premises at which the appliance or flue is installed
 - the name and address of the landlord of the premises at which the appliance or flue is installed
 - a description of and the location of each appliance or flue checked
 - any defect identified
 - any remedial action taken
 - confirmation that the check undertaken complies with legal requirements
 - the name and signature of the individual carrying out the check
 - the registration number with which that individual, or his employer, is registered with the Gas Safe Register
- give a copy of the safety check to each tenant of the premises within 28 days of the date of the check

- take prompt action to correct any safety defect shown on a safety check record, which is not remedied at the time of the safety check
- ensure that, where there is any suspicion that an appliance may be dangerous, the appliance is not used until the defect(s) have been remedied
- ensure that in any room occupied or to be occupied as sleeping accommodation there is not installed:
 - a gas fire, other gas space heater or a gas water heater of more than 14 kilowatt gross heat unless the appliance is a room-sealed appliance
 - a gas fire, other gas space heater or a gas water heater of 14 kilowatt gross heat input or less, or an instantaneous water heater unless:
 - it is a room-sealed appliance, or
 - it incorporates a safety control designed to shut down the appliance before there is a build up of a dangerous quantity of the products of combustion
- let tenants know how to turn off the supply in the event of a gas leak
- check gas appliances and flues to ensure they are safe before re-letting

Carbon monoxide/smoke alarms

At least one smoke alarm should be installed on every storey of properties and a carbon monoxide alarm in any room containing a gas appliance or a solid fuel burning appliance (eg a coal fire, wood burning stove).

Alarms must be checked to ensure they are in working order at the start of each new tenancy.

WATER SERVICES REQUIREMENTS

The Control of Substances Hazardous to Health (COSHH) Regulations 2002 place responsibilities on employers and those with responsibility for control of premises to protect people from hazardous substances at work. These responsibilities are expanded upon in the Approved Code of Practice and guidance on Legionnaires' disease (L8).

The following are typical requirements where temperature is used as the primary control measure for hot and cold water systems. See also appendix 3 for more details.

Responsible person

The responsible person must:

- ensure formal Legionella risk assessments are carried out with documentation of findings, including schematics detailing the water system
- regularly review and reassess the risks
- develop, implement and manage an appropriate risk minimisation programme, to include a prioritised action plan and a mechanism for escalating remedial work where a risk is indicated
- monitor control measures are maintained
- train staff
- maintain suitable records
- minimise cold water storage where practicable – it should normally be no greater than one working day's average water consumption
- minimise hot water storage where practicable – by installing instantaneous heaters or low volume water heaters
- remove redundant water pipes, outlets and other items without delay to prevent potential stagnation of the water supply
- ensure any work on water service systems complies with appropriate regulations and best practice
- ensure that in non-domestic premises cold water taps are labelled as either 'drinking water' or 'not drinking water'. Drinking water taps must be supplied directly from the mains, and not tank fed
- ensure that any Council supplied bottled drinking water dispensing mechanism requires regular cleaning and disinfection to avoid build up of bacteria. The bottled drinking water station should be cleaned and disinfected according to the manufacture's maintenance requirements. Records of these should be kept
- ensure domestic hot and cold water outlets, especially showers, are used regularly or flushed at least weekly to prevent potential stagnation of the water supply

Managers

Managers must:

- ensure weekly flushing of all low use outlets is carried out and recorded
- ensure that temperature settings at calorifiers, TMVs or taps are not tampered with since any adjustment may encourage the growth of Legionella bacteria. Any concerns regarding the temperature of the water should be referred to the responsible person for investigation and adjustment if necessary
- notify the responsible person of any outlets that are used either intermittently or which are under-used
- inform the responsible person of any significant change of use within their department that may adversely impact on the Legionella control programme
- report any defects or alterations to water systems
- consult with the responsible person before installing any of the following (or similar) equipment in Council premises: water softeners, sprinkler and hose reel systems, horticultural misting equipment, humidifiers, indoor fountains and water features
- ensure that all control and monitoring measures delegated to them are implemented and monitored, and recorded
- where responsible for temperature monitoring managers must inform the responsible person if the cold water temperature at a tap exceeds 20°C, or the hot water temperature at a tap falls below 50°C
- ensure that all staff involved in any related operational procedure are properly trained, instructed, informed and supervised; and responsibilities are properly defined and clearly documented
- assess the likelihood of scalding from hot water taps within their premises as part of their general risk assessment procedure. (As the recommended minimum temperature for legionella control at hot water taps is 50°C, this brings an increased risk of scalding by hot water.) The controls will depend on the needs and capabilities of users. For capable people, e.g. staff, a warning notice may be sufficient. But if vulnerable people can get access to taps or showers thermostatic mixing valves (TMVs) that prevent water being discharged at more than 43°C should be fitted. TMVs must be fitted according to manufacturer's instructions and need regular maintenance

Landlords

Non-domestic premises

Where non-domestic premises such as warehouses or offices are leased as workplaces, the tenant's own duties as an employer may interface with landlords' responsibilities for maintenance of water systems. Close co-operation and clear allocation of responsibilities are essential to ensure that requirements are fully met and no gaps in safety cover can arise. The landlord and tenant should come to a contractual arrangement in such cases to ensure responsibilities are clearly and unambiguously defined.

Domestic premises

Whilst there is a duty to assess the risk from exposure to Legionella to ensure the safety of tenants, this does not require an in-depth, detailed assessment. The assessment however, should be recorded and reviewed.

The risks from hot and cold water systems in most residential settings are generally considered to be low owing to regular water usage and turnover. A typical 'low risk' example may be a single dwelling unit with small domestic-type water system, where daily water usage is inevitable and sufficient to turn over the entire system; where there is no stored hot or cold water; where hot water is fed from instantaneous heaters or low volume water heaters (supplying outlets at 50 °C); and where the only outlets are toilets and wash hand basins.

Implementing simple, proportionate and appropriate control measures will ensure the risk remains low. Simple control measures to help control the risk of exposure to Legionella include:

- flushing out the system prior to letting the property
- avoiding debris getting into the system (e.g. ensure the cold water tanks, where fitted, have a tight fitting lid)
- setting control parameters (e.g. setting the temperature of the hot water cylinder (calorifier) to ensure water is stored at 60°C)
- make sure any redundant pipework identified is removed

The risk is further lowered where instantaneous water heaters (for example combi boilers and electric showers) are installed because there is no water storage.

Where there are difficulties gaining access to occupied housing units, appropriate checks may be made by carrying out inspections of the water system, for example, when undertaking mandatory visits such as gas safety checks or routine maintenance visits.

What tenants need to know

Tenants should be advised of any control measures put in place that should be maintained e.g. not to adjust the temperature setting of the calorifier, to regularly clean showerheads and to inform the landlord if the hot water is not heating properly or there are any other problems with the system.

Where showers are installed, these have the means of creating and dispersing water droplets (aerosols) which may be inhaled causing a foreseeable risk of exposure to Legionella. If used regularly (as in the majority of most domestic settings) the risks are reduced but in any case, tenants should be advised to regularly clean and disinfect showerheads. Instantaneous electric showers pose less of a risk as they are generally cold water-fed and heat only small volumes of water during operation.

Additional actions for properties left vacant

Properties left vacant for extended periods require careful management to ensure water is not allowed to stagnate within the water system. As a general principle, outlets on hot and cold water systems should be used at least once a week to maintain a degree of water flow and minimise the chances of stagnation. To manage the risks during non-occupancy, consideration should be given to implementing a suitable flushing regime or other measures such as decommissioning/recommissioning the system if it is to remain vacant for long periods.

Appendix 1

Recommended initial frequencies of inspection of electrical installations

Type of installation	Maximum period between inspections and testing
General Installation	
Domestic	Change of occupancy/10 years
Commercial	Change of occupancy/5 years
Educational establishments	5 years
Industrial	3 years
Residential accommodation	5 years
Offices	5 years
Shops	5 years
Buildings open to the public	
Cinemas	3 years
Leisure complexes (excluding swimming pools)	3 years
Theatres	3 years
Public houses	5 years
Village halls/Community centres	5 years
Special Installations	
Agricultural and horticultural	3 years
Caravans	3 years
Caravan Parks	1 year
Highway power supplies	6 years
Marinas	1 year
Swimming pools	1 year
Emergency lighting	3 years
Fire alarms	1 year
Launderettes	1 year
Construction site installations	3 months

Appendix 2

User checks for portable equipment

For many appliances this check can be completed in a manner of seconds whilst preparing to, or actually using the equipment. As the user you are most familiar with the equipment and may be in the best position to know if the equipment is working properly. No record is made of these checks.

If some aspect of the equipment is unsatisfactory, take the equipment out of service and inform Technical Support Unit.

User checks should proceed as follows:

1. Consider any faults with the equipment and whether it works properly.
2. Disconnect the equipment if appropriate.
3. Inspect the equipment, in particular looking at:
 - The flex – is it in good condition? Is it free from cuts, fraying and damage? Is it in a location where it could be damaged, is it too long, too short or in any other way unsatisfactory? Does it have any joints which may render it unsuitable for use?
 - The plug – is the flexible cable secure in its anchorage? Are there any signs of overheating, cracks or other damage?
 - The socket-outlet – are there any signs of overheating, cracks or other damage?
 - The appliance – does it work? Does it switch on and off properly? Are there any cracks, chemical or corrosion damage to the casing, or damage which could result in access to live parts? Can it be used safely?
 - Is the equipment suitable for the environment? E.g. is it rated for outdoor use?
 - Is the equipment suitable for the work it is required to carry out?
4. Take action – faulty equipment must be:
 - Switched off and unplugged from the supply.
 - Labelled to identify that it must not be used (it is best to cut off the plug and put the equipment beyond use).
 - Reported to the Technical Support Unit.

Appendix 3

The frequency of inspecting and monitoring the hot and cold water systems will depend on their complexity and the susceptibility of those likely to use the water. The risk assessment should define the frequency of inspection and monitoring depending on the type of use and user and where there are adjustments to take account of local needs.

Checklist for hot and cold water systems

(Extract from HSG274 Part 2 The control of legionella bacteria in hot and cold water systems)

Service	Action to take	Frequency
Calorifiers	Inspect calorifier internally by removing the inspection hatch or using a boroscope and clean by draining the vessel. The frequency of inspection and cleaning should be subject to the findings and increased or decreased based on conditions recorded.	Annually, or as indicated by the rate of fouling
	Where there is no inspection hatch, purge any debris in the base of the calorifier to a suitable drain. Collect the initial flush from the base of hot water heaters to inspect clarity, quantity of debris, and temperature.	Annually, but may be increased as indicated by the risk assessment or result of inspection findings
	Check calorifier flow temperatures (thermostat settings should modulate as close to 60 °C as practicable without going below 60 °C). Check calorifier return temperatures (not below 50 °C).	Monthly
Hot water services	For non-circulating systems: take temperatures at sentinel points (nearest outlet, furthest outlet and long branches to outlets) to confirm they are at a minimum of 50 °C within one minute.	Monthly
	For circulating systems: take temperatures at return legs of principal loops (sentinel points) to confirm they are at a minimum of 50 °C. Temperature measurements may be taken on the surface of metallic pipework.	Monthly
	For circulating systems: take temperatures at return legs of subordinate loops, temperature measurements can be taken on the surface of pipes, but where this is not practicable, the temperature of water from the last outlet on each loop may be measured and this should be greater than 50 °C within one minute of running. If the temperature rise is slow, it should be confirmed that the outlet is on a long leg and not that the flow and return has failed in that local area.	Quarterly (ideally on a rolling monthly rota)
	All HWS systems: take temperatures at a representative selection of other points (intermediate outlets of single pipe systems and tertiary loops in circulating systems) to confirm they are at a minimum of 50 °C to create a temperature profile of the whole system over a defined time period.	Representative selection of other sentinel outlets considered on a rotational basis to ensure the whole system is reaching satisfactory temperatures for legionella control

POU water heaters (no greater than 15 litres)	Check water temperatures to confirm the heater operates at 50–60 °C (55 °C in healthcare premises) or check the installation has a high turnover.	Monthly–six monthly, or as indicated by the risk assessment
Combination water heaters	Inspect the integral cold water header tanks as part of the cold water storage tank inspection regime, clean and disinfect as necessary. If evidence shows that the unit regularly overflows hot water into the integral cold water header tank, instigate a temperature monitoring regime to determine the frequency and take precautionary measures as determined by the findings of this monitoring regime.	Annually
	Check water temperatures at an outlet to confirm the heater operates at 50–60 °C.	Monthly
Cold water tanks	Inspect cold water storage tanks and carry out remedial work where necessary.	Annually
	Check the tank water temperature remote from the ball valve and the incoming mains temperature. Record the maximum temperatures of the stored and supply water recorded by fixed maximum/minimum thermometers where fitted.	Annually (Summer) or as indicated by the temperature profiling
Cold water services	Check temperatures at sentinel taps (typically those nearest to and furthest from the cold tank, but may also include other key locations on long branches to zones or floor levels). These outlets should be below 20 °C within two minutes of running the cold tap. To identify any local heat gain, which might not be apparent after one minute, observe the thermometer reading during flushing.	Monthly
	Take temperatures at a representative selection of other points to confirm they are below 20 °C to create a temperature profile of the whole system over a defined time period. Peak temperatures or any temperatures that are slow to fall should be an indicator of a localised problem.	Representative selection of other sentinel outlets considered on a rotational basis to ensure the whole system is reaching satisfactory temperatures for legionella control
	Check thermal insulation to ensure it is intact and consider weatherproofing where components are exposed to the outdoor environment.	Annually
Showers and spray taps	Dismantle, clean and descale removable parts, heads, inserts and hoses where fitted.	Quarterly or as indicated by the rate of fouling or other risk factors, eg areas with high risk users
POU filters	Record the service start date and lifespan or end date and replace filters as recommended by the manufacturer (0.2 µm membrane POU filters should be used primarily as a temporary control measure while a permanent safe engineering solution is developed, although long-term use of such filters may be needed in some healthcare situations).	According to manufacturer's guidelines
Base exchange	Visually check the salt levels and top up salt, if required. Undertake a hardness check to confirm operation of the softener.	Weekly, but depends on the size of the vessel and the rate of salt consumption

softeners	Service and disinfect.	Annually, or according to manufacturer's guidelines
Multiple use filters	Backwash and regenerate as specified by the manufacturer	According to manufacturer's guidelines
Infrequently used outlets	Consideration should be given to removing infrequently used showers, taps and any associated equipment that uses water. If removed, any redundant supply pipework should be cut back as far as possible to a common supply (eg to the recirculating pipework or the pipework supplying a more frequently used upstream fitting) but preferably by removing the feeding 'T'. Infrequently used equipment within a water system (ie not used for a period equal to or greater than seven days) should be included on the flushing regime. Flush the outlets until the temperature at the outlet stabilises and is comparable to supply water and purge to drain. Regularly use the outlets to minimise the risk from microbial growth in the peripheral parts of the water system, sustain and log this procedure once started. For high risk populations, eg healthcare and care homes, more frequent flushing may be required as indicated by the risk assessment.	Weekly, or as indicated by the risk assessment
TMVs	Risk assess whether the TMV fitting is required, and if not, remove. Where needed, inspect, clean, descale and disinfect any strainers or filters associated with TMVs. To maintain protection against scald risk, TMVs require regular routine maintenance carried out by competent persons in accordance with the manufacturer's instructions.	Annually or on a frequency defined by the risk assessment, taking account of any manufacturer's recommendations
Expansion vessels	Where practical, flush through and purge to drain. Bladders should be changed according to the manufacturer's guidelines or as indicated by the risk assessment.	Monthly–six monthly, as indicated by the risk assessment